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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/828,789	04/21/2004	**Robert Mariani**	02104C1P (3600-419-01)	5079

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EXAMINER	
MAI, NGOCLAN THI	
ART UNIT	PAPER NUMBER
1793	

MAIL DATE	DELIVERY MODE
04/25/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/828,789	MARIANI, ROBERT	
	Examiner	Art Unit	
	NGOCLAN T. MAI	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6-24,27,52,53,56 and 91-93* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,6,9,11-13,17,18,23,24,27,52 and 56* is/are rejected.

7)☒ Claim(s) *4,7,8,10,14-16,19-,22,53 and 91-93* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/17/07 has been entered.

2. Claims 1-4, 6-24, 27, 52-53, 56, and 91-93 are pending, wherein claim 1 is amended in amendment filed 12/17/07. Claims 25-26, 49-50, and 94-96 have been cancelled in the same amendment.

3. Upon further consideration, the claims are rejected over applicant's admitted prior art and Hall (U.S. Patent No. 2,675,310 art of record.)

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-3, 6, 9, 11-13, 17-18, 23-24, 27, 52, 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art on pages 2-4 of the instant application in view of Hall (U.S. Patent no. 2,675,310, art of record).

Applicant admits on pages 2-4 of the instant specification in the background section that it is known in the art to manufacture valve metal capacitors by compressing valve metal powder

to form a pellet, sintering the pellet in a furnace to form a porous tantalum body (electrode), and then subjecting the porous body to anodization in a suitable electrolyte to form a continuous dielectric oxide film on the sintered body. Applicants also admits that it is known that valve metal powder which is suitably employed in this process of forming a capacitor anode includes powders of niobium, tantalum, titanium, tungsten and/or molybdenum. Applicant further admits that sintering causes individual metal powder particles to join together to form a porous structure that is of high mechanical strength and density. Applicant also admits that oxidation of valve metal material can occur at various stages in the production or processing of the valve metal material, and the oxygen content of the valve metal material can be controlled by deoxidizing the valve metal at one or more stages of the processing (i.e. either before, during or after the processing). The deoxidation is typically achieved by introducing an oxygen getter to the valve metal material as a separate step of the method after the sintering. Therefore, Applicant admits that each of the methods recited in independent claims 1, 23, 27 and 56 are known with the exception of performing the sintering of the valve metal powder in the presence of at least one iodine source.

Hall (US 2,675,310) teaches of a method for consolidating valve metal powders such as tungsten, molybdenum, tantalum and titanium by sintering the metal powders in the presence of a halogen source such as iodine. Hall teaches that the rate of sintering of valve metal powders is greatly accelerated at temperatures below the melting point of the metals by performing the heating/sintering in a halogen atmosphere including either chlorine, bromine or iodine as a reactive gas or vapor. See lines 53-55 in column 1, lines 1-5 in column 2, lines 17-49 in column 3 and lines 39-49 in column 8 of Hall.

Based upon the combination of Applicant's admitted prior art on pages 2-4 of the specification and Hall, it would have been obvious to one of ordinary skill in the art at the time of the instant invention to perform the sintering of valve metal powders in the known process for forming valve metal capacitor anodes taught by Applicant in the presence of at least one iodine source since Hall teaches that the presence of iodine during the sintering of a valve metal powder such as tantalum serves to greatly accelerate the rate of sintering.

Regarding claims 2 and 18, Hall teaches a valve metal-halogen compound is temporarily formed. See lines 46-55, column 4.

As for claim 6, Hall teaches sintering in low pressure, such as from 50 microns to not more than 10 mm of mercury. The lower range of the sintering pressure (10 mm as compare to 760 mm for atmospheric pressure) reads on the claimed vacuum.

Concerning claims 9, 11, and 12, Applicants admits metal can be tantalum, therefore when tantalum is used, the valve metal iodine compound would inherently be tantalum iodide (TaI_5).

As for claim 13, Hall teaches the sintering temperature for Mo is 950 C and 1200 C for W, col. 7, lines 41-44. Hall therefore teaches sintering at temperature less than about 1200 C as recited in the claim.

As for claim 17, Hall teaches sintering for about 2 hours, see claim 6 of Hall. As for claim 16 since the process of the applicant's admitted prior art in view of Hall is performed at the sintering temperature and pressure as well as employing the starting material as disclosed by the

claims in the instant application, the prior art process would expected to include predominate sintering mechanism as recited in the claim 16.

Concerning claim 24, applicant admits that deoxidizing occurs at various stages in the production or processing of the valve metal material, i.e., before sintering. While applicant does not admit magnesium as the deoxidizing agent. It is submitted that magnesium is conventionally known in the art as oxygen getter. To employing magnesium for such purpose would have been obvious to one skilled in the art.

Concerning claim 52, Applicant admits anodization occurs after sintering. See instant application para. 0003.

6. Claims 4, 7-8, 10, 14-16, 19-22, 53, 91, 92 and 93 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NGOCLAN T. MAI whose telephone number is (571)272-1246. The examiner can normally be reached on 8:30-5:00 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
Supervisory Patent Examiner, Art Unit 1793

n.m.